RULE 4:37 -- DETERMINATION OF REASONABLY AVAILABLE CONTROL TECHNOLOGY FOR THE CONTROL OF OXIDES OF NITROGEN FROM STATIONARY GAS TURBINES

(Adopted 4-21-98; Amended 1-29-02)

A. Purpose: To limit the emissions of nitrogen oxides (NOx) to the atmosphere from the operation of stationary gas turbines.

B. Applicability: Except as provided in Section D., this determination shall apply to all existing stationary gas turbines rated by the manufacturer as 0.3 megawatt (MW) power output and larger.

C. Definitions:

1. Aggregate Emissions: A facility-wide sum of actual emissions, on an emissions category specific basis, from turbines subject to this rule operated at a single facility. Such "aggregating" of emissions will include all regulated emissions categories subject to this rule, except those subject to more stringent requirements including, but not limited to, Best Available Control Technology.

2. Baseline Emission Rate: Emissions under normal operating conditions, prior to control, determined by an emissions compliance test conducted in accordance with the requirements specified in Section G.2. The baseline emissions shall be adjusted to reflect any operational limit or control equipment installed.

3. Control System Operating Parameters: The operating parameters that the APCO deems necessary to analyze when determining compliance, such as, but not limited to, ammonia and exhaust gas flow rates, exhaust gas temperature, water or steam injection rate, exhaust gas flow rate, and combustion temperature for water or steam injection.

4. Emergency: Any situation arising from sudden and reasonably unforeseeable natural disaster such as earthquake, flood, wildfire, or other act of God, or events beyond the reasonable control of the operator, employees, or contractors, or accidents which require the operation of stationary gas turbine(s) to provide primary mechanical or electrical power in its abatement or control, or to provide essential services for public safety.

5. Emergency Standby Unit: A stationary gas turbine that operates only as a mechanical or electrical power source for a facility when the primary power source has been rendered inoperable due to failure beyond the reasonable control of the operator, except due to power interruption pursuant to a voluntary interruptable power supply agreement. Electricity generated by such unit can not be sold.

6. Emission Control Plan: A document which outlines how an existing facility will comply with the requirements of this rule.

7. Emission Limit: The maximum allowable concentration of NOx in the exhaust stream from the gas turbine expressed as parts per million by volume (ppmv) corrected to 15 percent oxygen (O_2) on a dry basis.

8. Exemption Loss Date: The date on which the APCO informs the owner/operator, in writing, that any exemption provided in Section D. of this rule no longer applies.

9. Measured NOx Emissions Concentration: The emissions of NOx in terms of part per million by volume at dry standard conditions corrected to 15% oxygen with the unit operating within 10% of the unit's maximum design capacity, or within 10% of the maximum permitted power output.

10. Power Augmentation: An increase in the gas turbine shaft output and/or the decrease in gas turbine fuel consumption by the addition of energy recovered from exhaust heat.

11. Public Service Unit: A gas turbine used to generate electricity for sale or for use in serving the public.

12. Rating: The continuous megawatt (MW) design rating or mechanical equivalent by a manufacturer for gas turbine(s) without power augmentation.

13. Reasonably Available Control Technology (RACT): The lowest emission limitation that a unit is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.

14. Stationary Gas Turbine or Unit: Any gas turbine system that is gas and/or liquid fueled with or without power augmentation. This unit is either attached to a foundation at a facility or is portable equipment operated at a specific facility for more than 90 days in any 6-month period.

15. Thermal Stabilization Period: The start up time necessary to bring the heat recovery steam generator to the proper temperature, not to exceed two hours.

D. Exemptions:

1. The provisions of this rule, with the exception of Section F.2.b., shall not apply to the operation of gas turbines used under the following conditions:

   a. Laboratory units used in research and testing for the advancement of gas turbine technology.

   b. Units operated exclusively for firefighting and/or flood control.

2. The provisions of this rule, with the exception of Section F.1.f. and F.2.a. shall not apply to the operation of gas turbines used under the following conditions:

   a. Emergency standby units demonstrated to operate less than 200 hours per calendar year,

   b. Units with a power output rating of less than 4 MW operating less than 877 hours per year.

E. Standards:

1. Unless opting for the alternative compliance strategy, the owner or operator of any stationary gas turbine unit subject to the provisions of this rule shall not operate such unit under load conditions, excluding the thermal stabilization period, which results in the measured NOx emissions concentration exceeding the emissions limit listed below averaged over three (3) hours.

Unit Size Megawatt Rating (MW)	Emissions Limit NOx, ppmv at 15% O_2 on a dry basis	
	Gas[a]	Oil[b]
0.3 MW and Greater	42	65

[a] Gas includes natural, digester and landfill.
[b] Oil includes kerosene, jet fuel, and distillate. The sulfur content of the oil shall be less then 0.05% by weight.

2. Alternative Compliance Strategy

a. The alternative strategy is a percent reduction in emissions of NOx from the baseline emissions rate. Turbines subject to this rule, opting for the alternative compliance strategy, shall achieve at minimum the reduction expected by implementation of the emissions standards listed in Section E.1. The applicant shall demonstrate that the alternative strategy's emissions limits, or emissions reductions, are equal to or more effective than the emissions reductions gained by applying the emission limits specified in E.1. The emissions limits, or emissions reductions, shall be averaged over three (3) hours under all plausible operating conditions.

b. Following the baseline emission rate determination for each turbine subject to this rule, the choice of which emission compliance standards shall apply shall be made on a case-by-case basis by the District in consultation with the permittee. When such a determination is made, the Authority to Construct/Permit to Operate shall thereafter contain specific enforceable operation conditions which will ensure compliance with the selected standard/limit.

c. The percent reduction as measured across the control device or relative to the baseline emission rate of each permit unit shall be determined on an emission rate basis. A permittee may petition the District to be allowed to "aggregate" the turbine emissions facility-wide by submitting an Emission Control Plan. The District may approve the facility's Emission Control Plan on a case-by-case basis.

1) The Emission Control Plan shall be submitted to the APCO for approval by (two years after adoption date).

F. Administrative:

1. Monitoring and Record Keeping Requirements: The owner or operator of any stationary gas turbine subject to the provisions of this rule shall perform the following actions:

a. Install, operate and maintain in calibration, equipment, as approved by the APCO, that continuously measures and records the following:

1) Control System Operating Parameters, and

2) Elapsed time of operation.

b. All records shall be properly maintained for a period of five years and made available for inspection upon request.

c. Submit to the APCO before issuance of the Permit to Operate information correlating the Control System Operating Parameters to the associated measured NOx output. This information may be used by the APCO to determine compliance when there is no continuous emission monitoring system for NOx available or when the continuous emission monitoring system is not operating properly.

d. Provide source test information as required by the District regarding the exhaust gas NOx concentration corrected to 15 percent oxygen on a dry basis

e. Maintain a gas turbine operating log that includes, on a daily basis, the actual Pacific Standard Time start-up and stop time, total hours of operation, type and quantity of fuel used (liquid/gas). This information shall be available for inspection at any time for five years from the date of entry.

f. Maintain a gas turbine operating log for units exempt under Section D.2. that includes, on a daily basis, the actual Pacific Standard Time start-up and stop time, total hours of

operation, and cumulative hours of operation to date for the calendar year. This information shall be available for inspection at any time for five years from the date of entry and submitted to the APCO at the end of each calendar year in a manner and form approved by the APCO.

2. Exempt Units And Emergency Standby Units:

a. Exempt units and emergency standby units must comply with the following:

1) The owner or operator of any unit listed below must notify the APCO within seven days if the hour-per-year limit is exceeded. A public service unit operating during a state of emergency shall be excluded from the hour-per-year limit. If the hour per year limit is exceeded, a written explanation of the cause of such exceedance shall be provided to the APCO. If the APCO determines that there is a likelihood of continued exceedances the owner or operator would lose their exemption and would be subject to the time lines specified in Section H.1.c.

a) Emergency standby unit exempt under Section D.2.a.

b) Any unit smaller than 4 MW exempt under Section D.2.b.

b. The owner or operator shall provide support documentation for any unit exempt under Section D.1.

G. Compliance Testing:

1. Testing Schedule:

a. The owner or operator of any stationary gas turbine subject to the provisions of this rule shall demonstrate compliance with the requirements of Section E. by conducting an emissions source test annually, or more frequently as required by APCO. The source test shall be conducted in accordance with methods specified in Section G.2. of this Rule.

b. An annual source test shall not be required if a continuous emissions monitoring system is used to determine compliance with the requirements of Section E. and a Relative Accuracy Test Audit (RATA) is performed annually on this system.

2. Test Methods:

a. Oxides of nitrogen emissions shall be determined by using ARB Method 20, or EPA Method 20.

b. Oxygen content of the exhaust gas shall be determined by using ARB Method 20 or 100, or EPA Method 3, 3A, or 20.

H. Compliance Schedule:

1. Owners or operators of all applicable gas turbine units shall comply with the applicable provisions of Section E. in accordance with the following schedule.

a. By (two years after adoption date), submit to the APCO for approval an Authority to Construct application which shall contain at a minimum a list that provides the following for each gas turbine:

1) Permit or identification number,
2) Name of gas turbine manufacturer,
3) Model designation,
4) Rated shaft power output (MW),
5) Type of liquid fuel and/or type of gaseous fuel,
6) Fuel consumption (cubic feet of gas or gallons of liquid) for the previous one-year period,
7) Hours of operation in the previous one-year period.
8) A list of all gas turbines required to be controlled, identifying the type of emission control to be applied to each gas turbine along with documentation showing existing emissions of oxides of nitrogen.

b. By (four years after district rule adoption date), demonstrate final compliance.

c. For those turbines which are exempt from the emission limits of this rule and subsequently lose this exemption after (one year after rule adoption date),

1) By (one year after exemption loss date), submit to the APCO for approval an Authority to Construct application providing the information specified in Section H.1.a.

2) By (three years after exemption loss date), demonstrate final compliance.

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